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# LONG-TERM TRENDS IN TOTAL NITROGEN AND TOTAL PHOSPHORUS CONCENTRATIONS IN MANITOBA STREAMS

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## Errata

The authors wish to inform the reader of the following errors that were detected after the report was printed.

1. The 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> paragraphs in the Executive Summary (p. II) should read as follows (changes are in underlined bold font):

Analysis indicated great variability in long-term trends in TN and TP concentrations between streams and within streams in Manitoba. Nineteen water quality stations from 13 different streams had trends of increasing TN concentrations, while TP concentrations exhibited positive trends at 19 stations from 16 streams. Twelve monitoring sites, representing 10 different streams, had trends of increasing concentrations for both TN and TP. Most of these streams were in the southern portion of the province in the Assiniboine and Red River watersheds. The majority of streams in these watersheds are susceptible to anthropogenic nutrient loading because human population densities are high and agricultural land-use is intensive.

Four monitoring stations from four separate streams were found to have trends of decreasing TN concentration, while trends of decreasing TP were found in data from six monitoring stations representing six streams. Streams with trends of decrease were found in the northern and west-central regions of the province. Only two monitoring stations, one on the Swan River and the other on the Burntwood River, had decreasing trends for both TN and TP.

Ten monitoring stations from 10 streams and 20 stations from 15 streams showed no detectable trends in TN or TP, respectively. Seven monitoring stations, each from a different stream, showed no detectable trend in both TN and TP concentrations. Streams with stations ...

2. The 4<sup>th</sup> paragraph in the Summary section (p. 140) should read as follows (changes are in underlined bold font):

Ten monitoring stations from 10 streams and 20 stations from 15 streams had no significant trends in TN or TP, respectively. Seven of these monitoring stations each from a different stream had no significant trends in both TN and TP concentrations. Streams with stations ....

3. The following references should be included in the References section (p. 146).

Brokenhead River Watershed Management Study. 1995. Information pamphlet of a study sponsored by several Provincial and Federal agencies, Municipal governments, and non-governmental organizations with financial support from the Canada-Manitoba Agreement on Agricultural Sustainability (CMAAS). 8 pp.

Carmichael, W. W. 1991. Toxic freshwater blue-green algae (cyanobacteria): an overlooked health threat. *Health & Environment Digest* 5:1-4.

Carpenter, S. R., N. F. Caraco, D. L. Correll, R. W. Howarth, A. N. Sharpley, and V. H. Smith. 1998. Nonpoint pollution of surface waters with phosphorus and nitrogen. *Ecological Applications*. 8:559-568.

Cowan, J and S. Therrien-Richards. 1986. An agricultural chemical use farm survey of the La Salle River Watershed, 1984. Environment Canada, Western and Northern Region. Winnipeg, MB. 19 pp.

Vecchia, A. V. 2000. Water-quality trend analysis and sampling design for the Souris River, Saskatchewan, North Dakota, and Manitoba. Water-Resources Investigations Report 00-4019. U.S. Geological Survey. Bismark, ND. 77 pp.

4. The following should be included in the Personal Communication section (p. 153).

Lee, G. P. 2001. National Hydrology Research Centre (NHRC), Environment Canada. Saskatoon, SK